A Push-Pull Answer to Asian Lady Beetles

Homeowners aren't too happy when large numbers of multicolored Asian lady beetles come inside in autumn. Even though *Harmonia azyridis* has served well as an effective biological control against aphids and scale insects since its introduction in 1916, its indoor congregation creates a nuisance. So researchers have been looking at compounds that might repel the beetles. Two compounds—camphor and menthol—that seem to irritate the insects' chemosensory organs have shown the best results so far.

Scientists think that using such repellent vapors could push these beneficial beetles from their overwintering sites. Then the insects might be pulled by pheromone lures into traps and released where they'd perform their biocontrol function. *Eric W. Riddick, USDA-ARS Biological Control and Mass Rearing Research Unit, Mississippi State, Mississippi; phone (662) 320-7382, e-mail eriddick@bcmrru.ars.usda.gov.*

Transgenic Cow To Resist Mastitis

"Annie" is the first cow to be cloned with a gene for an agricultural application. She was born in March 2000, a copy of a pure-bred Jersey cow. Now that she's over a year old, scientists are starting to test her milk for resistance to mastitis, a bacterial disease that costs U.S. producers about $1.7 billion annually. It is often caused by *Staphylococcus aureus* bacteria that destroy milk-secreting cells in cows' mammary glands.

Researchers hope that Annie's mammary glands will secrete a protein called lysostaphin that may help her resist attacks from *S. aureus.* That's because they inserted a gene for lysostaphin production obtained from a benign species of *Staphylococcus—S. simulans*—that competes with its disease-causing relatives.

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Annie the cow: bioengineered to have a gene for mastitis resistance.

Antibiotics cure only about 15 percent of cows infected with *S. aureus.* It is among the most virulent of mastitis-causing pathogens, causing nearly one-third of all infections in cows. If the lysostaphin works, Annie will have an alternative defense bioengineered right inside her cells. The scientists are also looking for naturally occurring mastitis-resistance genes. *Kevin Wells and Robert Wall, USDA-ARS Gene Evaluation and Mapping Laboratory, Beltsville, Maryland; phone (301) 504-8342, e-mail kwells@lpsi.barc.usda.gov bobwall@lpsi.barc.usda.gov.*

Kit for Detecting Flesh-Eating Maggots

Screwworms consume the living flesh of their victims. They cause great suffering in afflicted livestock and wildlife and cost producers millions annually. They can also plague pets and people. Eradication programs have eliminated this parasite from the United States, Mexico, and most of Central America. But trade with and travel to and from screwworm-infested regions make re-infestations a concern.

Scientists have developed a diagnostic field kit to quickly spot any screwworm flies trying to sneak back in. Its use reduces from several days to a few hours the time it takes to differentiate screwworm fly maggots from those of similar fly species and to take action to contain them.

Screwworm's presence can be confirmed in 6 hours with the kit, which has been found 99.9 percent accurate. That's thanks to a monoclonal antibody that binds with a protein antigen in screwworm tissue samples. Speed and accuracy of detection will make possible an appropriate response to a suspected new outbreak. A commercial test kit could be available within 2 years. *Steven R. Skoda, USDA-ARS Midwest Livestock Insects Research Unit, Lincoln, Nebraska; phone (402) 437-5267, e-mail sskoda@unlnotes.unl.edu.*

Heat Your Home or Feed Your Livestock?

Burnable pellets made from cotton gin trash are in a testing phase. The new, low-cost, patent-pending system that makes the pellets can also turn gin trash into livestock feed, fertilizer, or mulch—in either pellet or loose form. The pellet mill presses the trash and other ingredients into cylinders 1/4- to 5/8-inch wide and 1/2- to 1-inch long.

In North America, more than 60 commercial mills already make over 610,000 tons of fuel pellets each year. They typically consist of sawdust and ground wood chips. The new pellets would include those parts of cotton plants—stems, branches, seeds, cotton boll parts—removed during ginning. Adding a hot, gelatinized starch solution makes the mixture more digestible as feed and acts as a glue and lubricant to ease the material's flow through the equipment.

Early tests show these pellets to be more digestible than those already made from cotton seed hulls. The research and development are funded in part by Cotton Incorporated, Raleigh, North Carolina. *Gregory A. Holt, USDA-ARS Cotton Production and Processing Research Unit, Lubbock, Texas; phone (806) 746-5353, e-mail gholt@lbk.ars.usda.gov.*